Subject: Re: FRS Calibration Issue
Posted by mlcortes on Sun, 21 Sep 2014 19:59:49 GMT
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Hi Scott!

Good to know that you found the problem with the Z calibration!
I looked at your calibrations and all seems to be fine. The only parameter I don't find calibrated is rho_o. This is the path of the central trajectory along the FRS. This value is usually obtained with the minumum matter run and can explain the shift in AoQ that you have.
To check if this parameter is correct, you can take different settings from the logbook and multiply the magnetic field measured (that should be written in the side) times the rho_0 that you are using in you FrsId.par. Take into account that there is one rho_0 for each magnetic field. The multiplication Brho, should be very close to the theoretical values, that are written usually at the bottom of the page after the settings.
If the values differ is because the rho_0 values are not correct and in this case you can find the proper ones.

About getting a position from the scintillators, you can do it using the TofSystemTacCal processor in the FRS plugin. It has as inputs dt_S2lr and dt_S4lr which are the times between left and right PMTs of each scintillator.

```
processor Frs/TofSystem   FRS.TofSystemTacCal
      dt_S2lr <- FrsCrate.adc0[0]
      dt_S4lr <- FrsCrate.adc0[1]
.....
end
```

You can plot this values vs the position projected in the scintillator position measured by the TPCs like (i take only as example Sc21)

```
processor Frs/ScintChecks/S2_x_vs_x  UTILS.Pair
      first  <- Frs/TofSystem.dt_S2lr
      second <- Frs/S2tracking.xs[1]  ##check where are you projecting according to your S2tracking.par file
      display first:second in S2pos_checks  1000,2000,2500:500,-20,20 ## check the range or leave it smart to start
end
```

The plot you obtain should be a line, correlatind the time difference to the position. You can fit this line in Go4 using the SetProfileX and the FitPanel, and put the coefficients in the file TofSystem.cal. The name of this parameters is cal_x_time_S2 (for Sc21) and cal_x_time_S4 (for Sc41). With this parameter properly set you should be able to see the output x_time_S2 giving you the position. To compare again with position from TPCs:

```
processor Frs/ScintChecks/S2_calx_vs_x  UTILS.Pair
      first  <- Frs/TofSystem.x_time_S2
      second <- Frs/S2tracking.xs[1]
      display first:second in S2pos_checks  500,-20,20:500,-50,50
end
```

One can do the same calibration using, not the time difference between the 2 PMTs, but the difference in the amplitude measured.
Let me know how is it going and if you have more questions.
